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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,931	01/16/2001	Bi Le-Khac	01-2532B	4319

24114 7590 08/19/2002

LYONDELL CHEMICAL COMPANY  
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EXAMINER

ZALUKAEVA, TATYANA

ART UNIT PAPER NUMBER

1713

DATE MAILED: 08/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/760,931	BI LE-KHAC ET AL	
	Examiner	Art Unit	
	Tatyana Zalukaeva	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 May 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7 and 9-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

### DETAILED ACTION

1. Cancellation of claims 6 and 8 in Paper No. 7 is acknowledged.
2. Claims 1-5, 7, 9-15 are pending. Claim 1 has been amended.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-5, 7, 9, 10, 12 and 13 are rejected under 35 U.S.C. 102(e) or 102 (a) as being anticipated by Nagano et al (U.S. 5,834,576), as **evidenced** by anyone of the

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following:

Chamberlain (U.S. 5,605,991) or Hoxmeier (U.S. 5,773,521) or Watson et al (U.S. 4,466,904). (see MPEP 2131.01. II, which allows 102 rejection by multiple references "Extra reference or other **evidence** can be used to show the **meaning of a term** used in the Primary reference")

Nagano discloses method for preparing comb copolymers from (meth) acrylic monomers, represented by a general formula (17) in col.21, line 60, which encompass **acrylic acid, methacrylic acid,  $\alpha$ -(hydroxymethyl) acrylic acid, and monovalent metallic salts, ammonium salts, and organic amine salts thereof (col. 21, lines 61-67) and polyether macromonomers, such as polyethylene glycol mono (meth) acrylate,**

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**polypropylene glycol mono (meth) acrylate, and other polyether macromonomers listed** in col. 22, lines 25-50).

Nagano explicitly teaches, that the solution polymerization can be performed batchwise or **continuously** (col.23, line 52), and a **free radical polymerization in the presence of peroxides, persulfates, azo initiators**, which is utilized in an organic solvent that dissolves the said initiators (col.24, lines 1-16). The reaction temperature is not particularly limited, but **preferably set within the range from 0 to 120<sup>0</sup>**. Polymers obtained in Nagano's invention have superior water reducing and slump maintaining ability, and are suitable used as cement dispersing agents (col.35, lines 10-15). With regard to the steps of the process, Nagano in a number of his preferred embodiments presents the steps identical to those instantly claimed, such as Examples 11 and 12 in

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columns 45 and 46 provides for forming a stream of acrylic monomer and macromonomer, and a stream of an aqueous solution of ammonium persulfate as an initiator stream, performs polymerization at 50<sup>0</sup>C and then "subsequently polymer solution is transferred to an autoclave" for further processing, which means that the polymer stream is withdrawn from the reaction zone, as per instant claim 1.

With regard to using a chain transfer agent in a polymerization step, Nagano teaches that it is desirable to add **molecular oxygen** or air in order to restrain polymerization of acrylic ester and cyclic ether compound (column 12, lines 24-29), in other words to regulate the molecular weight of the chain. Further Nagano teaches that inhibitors of polymerization or combination of those, such as **phenothiazine** are used to

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such inhibitors in combination with molecular oxygen can be used. (column 12, lines 30-44).

These compounds, namely oxygen and phenothiazine do serve as chain transfer agents, as evidenced by anyone of the following:

- Chamberlain (U.S. 5,605,991): " At the conclusion of the polymerization, polyme can be recovered using any conventional technique. For instance, it can be simply terminated through the addition of a chain transfer agent such as carbon monoxide, oxygen, alcohol, or other known terminating agents (see column 3, lines 63-67).
- Hoxmeier (U.S. 5,773,521): This means it (polymerization) can simply be terminated through the addition of a chain transfer agent such as carbon monoxide, oxygen, alcohol or other known terminating agents (see column 5, lines 44-50).
- Watson et al (U.S. 4,466,904): This example illustrates the excellent chain transfer qualities of the DNPC in combination with the phenothiazine to reduce the molecular weight of the polymer formed. ( column 5, Example 1, especially lines 66, 67).

With specific regard to limitations of claims 4 and 5 Nagano teaches that the polymerization, which can be carried out **continuously** is a solution polymerization, and

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exemplifies suitable solvents (col.23, lines 52-57). Polymerization initiators suitable for polymerization in an organic solvent are presented in col.24, lines 9-15 and are identical to those instantly claimed.

Therefore all the limitations of claims 1-5, 7,9, 10, 12 and 13 in terms of the steps of the process, as well as the reagents involved are met by the disclosure of Nagano.

5. Claims 11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano in view of . Nagasawa et al (U.S. 5,310,813).

Nagano does not specify the chain transfer agents as mercaptan compounds. However, Nagano is clearly concerned with the regulation of molecular weight, (see column 35, lines 22-30). Mercaptans are known in the art as the most widely and conventionally used chain transfer agents.

Thus, Nagasawa discloses a process for preparation of thermosetting coating resin consisting of branched polymers, wherein branched polymer is obtained by copolymerizing a macromolecular monomer having radical-polymerizable group at one end in the molecule with another radical polymerizable monomer. (see abstract). The molecular weight of the branched copolymer can be effectively controlled by the use of chain transfer agent in combination with polymerization initiator. As the chain transfer agent there is used dodecyl mercaptan, lauryl mercaptan, thioglycolic acid, in the amount of 1-40 moles per mole of the total polymerizable components (see col.7, lines 5-12).

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Because the weight average molecular weight of Nagano's polymers should preferably be within the specific range as discussed above, and because Nagano utilizes chain transfer agents, as shown in paragraph 5 of the present Office Action, and based on the functional equivalency of Nagano's and Nagasawa's chain transfer agents it would have been found obvious by one skilled in the art to utilize the mercaptan chain transfer agents utilized for branched polymers of Nagasawa in the process of Nagano, in lieu of Nagano's chain transfer agents in order to limit the molecular weight to a desirable value and thus maintain good water reducing ability, and thus to arrive at the instantly claimed subject matter.

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### ***Response to Arguments***

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6. Applicant's arguments filed May 23, 2002 with regard to Nagano and Nagasawa references have been fully considered but they are not persuasive. **The only** Applicants' argument is that in order to overcome rejections, claim 1 incorporates the limitations of claims 6 and 8. Applicants further state that Examiner "recognizes that claim 8 is not obvious over the combination of Nagano and Nagasawa"

In response to this, Examiner notes that claim 8 was never rejected by 103(a) rejection, but to the contrary was rejected under 35 USC 102 (a/e). (see Paper No. 4, paragraphs 2 and 3.

Applicants did not provide any arguments as **to the merits of the rejection**, but only amended claims are presented as well as provided the **conclusory statement** that the

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amended claims are neither anticipated nor obvious over the prior art of record. However, conclusory statements not entitled to rebut anticipation or obviousness rejections, as per *In re Wood*, 199 USPQ 137 (CCPA 1978), *In re DeBlauwe*, 222 USPQ 191 (Fed. Cir. 1984).

Resuming the above, a reference anticipates a claim, if it discloses the claimed invention such that a skilled artisan could take this teaching in combination with his own knowledge of the particular art and be in possession of the invention, as per *In re Graves*, 36 USPQ 2d 1697 (Fed. Cir. 1995), or *In re Sasse*, 207 USPQ 107 (CCPA 1980). And furthermore, the disclosure in a reference must show the claimed elements arranged as in the claim, but need not be in identical words as used in the claim to be anticipatory. *In re Bond*, 15 USPQ 2d 1566 (Fed. Cir. 1990).

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As such, Examiner believes that the merits of anticipation and obviousness are clearly presented.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is



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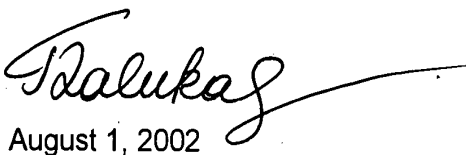
not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (703) 308-8819. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

Tatyana Zalukaeva  
Examiner  
Art Unit 1713

  
August 1, 2002